



**SANTA CLARA FIRE DEPARTMENT**  
**DIVISION OF FIRE PREVENTION**  
**1675 LINCOLN STREET**  
**SANTA CLARA, CALIFORNIA 95050**  
**(408) 615-4970 Schedule Inspection Appointments**  
**(408) 615-4987 Code Requirement Information**



## **Miscellaneous Permit Application**

### **High-Piled Storage**

**IMPORTANT:** Include in the permit submittal package two (2) sets of scaled plans, this application, appropriate fees, and all the information required in the attached "Permit Information Guide - High-Piled Storage". After approval of this Miscellaneous/High-Piled Storage Permit, if fire sprinkler system work is required, a separate Automatic Fire Sprinkler Permit shall be applied for (please refer to "Fire Sprinkler Permit" section of the "Permit Information Guide - High-Piled Storage").

Note: An approved Fire Protection Engineer and/or Nicet Level IV Certified Technician, who is qualified and experienced with "High-Piled Storage", shall be responsible for the design of the project, permit package submittals and the stamping / wet signing of all drawings / documents affiliated with the project. The Fire Protection Engineer and/or Nicet Level IV Certified Technician shall ensure the design of the storage system(s) and fire sprinkler system comply with all applicable codes, standards and/or regulations.

PLEASE PRINT OR TYPE. INCOMPLETE SUBMITTAL PACKAGES WILL BE RETURNED WITHOUT PROCESSING.

Job Address:			(For Office Use Only)
			Fire Permit #: <b>FIR</b> -
Bldg. #:	Suite #:	UBC Occupancy Class(es) In Area(s) of work:	Permit Type: <b>MISC/HPS</b>
Area Name:			Station #:
Room Name:			Date:
Business / Tenant:			Permit Fee:

Scope of Work: (Describe the work that is being proposed; be specific)

Fire Protection Engineer / Nicet IV Technician:		State License or Certification #:	
Address:		Contact Person:	
City:		Phone: (     )	Fax: (     )
State:	Zip:	Job Reference #:	

**Abbreviations:** CFC = 2001 California Fire Code; CBC = 2001 California Building Code; NFPA = 1999 National Fire Protection Association standards and SCMFEC = 2002 Santa Clara Municipal Fire & Environmental Code.

Installing Contractor:		Contractor License #:	
Address:		Contact Person:	
City:		Phone: (     )	Fax: (     )
State:	Zip:	Job Reference #:	

Company / Person paying for permit:		Phone: (     )	Fax: (     )
Address:		Contact Person:	
City:	State:	Zip:	

Please compute the plan check fees using the information below.

Calculate Fee:	\$890.00 <b>per storage area</b>	(     )	x 890.00 =	\$
<b>TOTAL FEE:</b>				\$

Please make checks payable to: Santa Clara Fire Department.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.	
Signature of Applicant or Agent:	Date:

NOTE: Permit application will expire within 180 days of last inspection, unless you submit a written request for approval of an extension.

**Abbreviations:** CFC = 2001 California Fire Code; CBC = 2001 California Building Code; NFPA = 1999 National Fire Protection Association standards and SCMFEC = 2002 Santa Clara Municipal Fire & Environmental Code.

# Santa Clara Fire Department

## Permit Information Guide – High Piled Storage

Revised 7-7-05

### High-Piled Storage

This guide provides information on Fire Department permit submittals for buildings having high-piled storage areas exceeding 500 square feet and regulated by Article 81 of the 2001 California Fire Code.

### DEFINITIONS

The “High-Piled Storage” term applies to a broad range of combustibles that are stored palletized, in closely packed piles, in bin boxes or on shelves or in racks where the top of storage is greater than **12-feet in height**. When “High-Hazard Commodities” (e.g., Aerosols, plastics, bin boxes, idle wood or plastic pallets, foam rubber or foam plastic mattresses and pillows, rubber tires, baled cotton, rolled paper, flammable liquids, and similar commodities) are involved then combustible storage of **ANY height** may be considered “High-Piled Storage”.

### REQUIREMENTS

***Note: An approved Fire Protection Engineer and/or Nicet Level IV Certified Technician, who is qualified and experienced with “High-Piled Storage”, shall be responsible for the design of the project, permit package submittals and the stamping / wet signing of all drawings / documents affiliated with the project. The Fire Protection Engineer and/or Nicet Level IV Certified Technician shall ensure the design of the storage system(s) and fire sprinkler system comply with all applicable codes, standards and/or regulations.***

1. **Miscellaneous/High-Piled Storage Permit.** A Fire Department “Miscellaneous/High-Piled Storage Permit” is required to use any building or portion thereof as a high-piled storage area when exceeding 500 square feet (2001 CFC 105 h.2). Architectural plans must be submitted with an application for such permit in accordance with Article 81 of the 2001 California Fire Code. The design plans shall include the following items for the existing and proposed storage arrangements:
  - a. Site plan that identifies the fire access roads, designated fire lanes and all public and private fire hydrants, surrounding the facility (2001 CFC 8102.6.1; 1999 NFPA 13; 8-1).
  - b. Code Compliance Plan - which clearly denotes occupancy/area separations/ratings, the occupant load, factor and classifications for each room/area; exit loads for each room/exit and the location of required fire department access doors (CBC 106.3; Chp. 10; 2001 CFC 8102.6.2.2).
  - c. Locations, and classification(s), of the portable fire extinguishers (1999 NFPA 230; 3-3.3.1).
  - d. Roof support columns within the high bay warehouse area(s) and give details if protected (1999 NFPA 230; 3-2.2; NFPA 13; 7-9.8).
  - e. Ceiling slopes for each high piled storage area [i.e., not exceeding two in 12 (16.7 percent) (1999 NFPA 13; 7-3.1.3 & 7-4.1.2)].
  - f. Qualified analysis of how the Commodity Classification(s) were determined. For mixed commodities, with limited Group A plastics involved, provide percentages in accordance with Section 8101.4.3 of the 2001 California Fire Code.
  - g. Mixed Commodities. Identify all contiguous areas occupied by a limited higher-hazard commodity in accordance with Section 2-2.1.2 of 1999 NFPA 13 and Section 8101.5.2 of 2001 California Fire Code.
  - h. Identify and detail, both in Plan and Elevation Views, each high-piled storage area showing locations, dimensions, commodity type, storage arrangement type (i.e., solid pile, bin box, shelf, rack, etc.), aisles and exits (2001 CFC 8101.4, 1999 NFPA 13; 2-2.3; 1999 NFPA 13; 7-4.2.1.6; 7-4.2.2.2.2).
  - i. Usable storage height for each storage arrangement (i.e., solid piles, solid piles on pallets, idle pallets, binbox, palletized, shelf storage, rack storage with open shelves, rack storage with solid shelves,
  - j. Clearance between top of storage and the roof/ceiling height for each storage arrangement (1999 NFPA 13; 7-3.3.2.1, 7-4.2.2.1.9, 7-4.2.2.1.10).
  - k. Number of tiers within each rack, if applicable.
  - l. Commodity clearance between top of storage and the sprinkler deflector (from ceiling and in-rack sprinklers) for each storage arrangement (1999 NFPA 13; 5-5.6; 5-6.6; 5-7.6; 5-8.6; 5-10.6; 5-11.6).

- m. Maximum pile, shelf and palletized storage dimensions, volume & height for each storage array (CFC Table 81-A).
  - n. Location of commodities, which are banded or encapsulated (1999 NFPA 13; 7-3.2.1.1, 7-4.2.1.2.1, 7-4.2.3.1, 7-4.2.3.2, 7-4.2.3.3, 7-4.3.2).
  - o. Sprinkler system design approach, and identify the applicable 1999 NFPA 13 code section(s) and all tables, figures and curves used to determine and adjust the selected sprinkler locations, design area and density (1999 NFPA 13; 7-3, 7-4, etc., 8-1, 8-2, 8-3, etc., and 8-8). (Separate permit required for sprinklers-see Item 5 below). Mixed commodity storage shall be protected by the requirements for the highest classified commodity and storage arrangement (2-2.1.2).
  - p. Identify how the required sprinkler design density extends 15-feet beyond the perimeter of the high-piled storage area(s) and limited high-hazard commodity area(s) (1999 NFPA 13; 7-3.1.3, 7-4.1.5.5).
  - q. Fire detection system provided (2001 CFC Table 81-A). If applicable, provide complete details on the location of all initiating and notification devices (Separate permit required for alarm systems).
  - r. Location of valves controlling the water supply of ceiling and in-rack sprinklers.
  - s. Type, location and specifications of smoke-removal and curtain board systems (2001 CFC 8102.7 & .8; 1999 NFPA 13; 7-4.1.3.1).
  - t. Dimension and location of transverse and longitudinal flue spaces (1999 NFPA 13; 7-4.1.4).
  - u. Type of pallets, including materials of construction (1999 NFPA 13; 2-2.2, 7-4.2.2.1.11, 7-9.5.1.1, 7-9.5.1.2, A-7-9.5.1.1).
  - v. Type of shelf that will be used for each shelf/rack system (i.e., Open, wired, slatted, or solid) including their materials of construction (1999 NFPA 13; 7-4.1.7).
  - w. Location(s) and a detail of the 1-1/2" hose valve stations provided in accordance with Section 5-15.5 of 1999 NFPA 13. (1999 NFPA 13; 7-3.1.1, 7-4.1.6).
  - x. Details on any specialty storage arrangement systems (i.e., automated, carousel, freezer, etc.).
2. Note: The Building Department will require a separate Building Department permit for the seismic anchoring of any shelves and/or racks where the storage is over eight (8) feet in height. For Building Department permit information and application, call the Permit Center at 408/615-2420.
  3. Existing occupancies with "High-Piled Storage" are not required to retroactively meet the requirements of the current fire code when all of the following conditions apply:
    - a. The occupant has a valid Fire Department permit for "High-Piled Storage".
    - b. No change in use, occupancy or ownership (2001 CFC Section 105.2.2).
    - c. No change in practice, process, storage arrangement or storage floor area (UFC Section 102.1 & 105.2.2).
    - d. No increase in the commodity classification.
    - e. Occupancy remains in compliance with the all applicable codes, standards and ordinances under which the original permit was issued.
  4. When automatic fire sprinklers are required, the sprinkler system must be capable of providing the minimum required water supply for the type of commodity and the storage arrangement, regardless of pre-existing conditions.
  5. **Fire Sprinkler Permit.** A separate Fire Department permit is required for the installation of the automatic fire sprinkler system. Note, an approved Fire Protection Engineer and/or Nicet Level 4 Certified Technician, who is qualified and experienced with "High-Piled Storage", shall design and submit the permit package for the installation of the automatic fire sprinkler system. The permit application shall indicate the California State licensed (C-16) fire protection contractor who will be installing the system based upon the **approved** Fire Department "Miscellaneous/High-Piled Storage Permit" (Item 1). The sprinkler system permit submittal package must be in accordance with Chapter 8 of the 1999 edition of NFPA 13. The design plans shall include the following items for the existing and proposed storage arrangements:
    - a. Provide everything listed in Item 1 mentioned above.
    - b. Water supply information from a recent flow test (conducted within five years) in close proximity to the building site. Static and residual hydrants that were used in flow tests shall be shown (1999 NFPA 13; 8-1.1.1(43)).

- c. Sprinkler system design approach, and identify the applicable 1999 NFPA 13 code section(s) and all tables, figures and curves used to determine and adjust the selected sprinkler locations, design area and density (1999 NFPA 13; 7-3, 7-4, etc., 8-1, 8-2, 8-3, etc., and 8-8). Mixed commodity storage shall be protected by the requirements for the highest classified commodity and storage arrangement (2-2.1.2).
- d. Hydraulic calculations for roof/ceiling and storage/rack sprinklers shall be provided in accordance with 1999 edition of NFPA 13 (1999 NFPA 13; 7-4.2.1.4; 7-4.2.2; 7-4.3.1.5.1; 7-4.4.2.4.4).
- e. Make, type, model, nominal K-factor, and temperature rating for each sprinkler type, including full manufacturer spec sheets. (1999 NFPA 13; 8-1).
- f. Type of sprinkler system used for each rack/storage and roof/ceiling system (i.e., wet, dry, pre-action, etc. (1999 NFPA 13; 7-3.1.2.1, 7-3.2.2.2.4, 7-4.1.5).
- g. Locations and a detail of the 1-1/2" hose valve stations provided in accordance with Section 5-15.5 of 1999 NFPA 13. (1999 NFPA 13; 7-3.1.1, 7-4.1.6).
- h. Type of horizontal barriers used in conjunction with in-rack sprinklers (1999 NFPA 13; 7-4.1.11).
- i. Identify the minimum vertical clear space between the in-rack sprinkler deflectors and the top of a tier of storage (1999 NFPA 13; 7-4.2.1.1.1, 7-4.2.1.1.2, 7-4.2.1.6.4, 7-4.3.1.2).
- j. Identify and detail, in both Plan and Elevation Views, the in-rack sprinkler locations/spacing and the maximum storage height(s) for each storage arrangement (i.e., pile, bin, shelf or single, double, multiple-row racks) (1999 NFPA 13; 7-4.2.1, 7-4.3.1.5).
- k. Location in of all required face sprinklers from the aisle face of storage and not from the aisle face of rack columns/supports (1999 NFPA 13; 7-4.3.1.2).
- l. Location of all listed hangers and flex couplings, including a detail of each type of vertical drop (1999 NFPA 13; 6-2.4.2; 6-2.5.1; 6-2.5.4; 6-4.2).
- m. Locations of all sway bracing (1999 NFPA 13; 6-4.5).

# HIGH-PILED STORAGE CHECKLIST

An overview of the permit submittal package has been completed and the following items were found to be missing or incorrect. Please resubmit plans that incorporate the necessary additions and corrections for a proper review and approval, prior to any installation. Failure to obtain approvals prior to installation constitutes a violation of the Uniform Fire Code and may result in a citation requiring court appearance.

NOT SHOWN	NOT CORRECT	<b>FPE DESIGN PLANS SHALL INCLUDE THE FOLLOWING ITEMS</b> on existing and proposed storage arrangements. Further clarification on each item can be found on the attached high-piled storage guide:	
		<b><i>Miscellaneous/High-Piled Storage Permit</i></b>	
		a.	Site plan that identifies the fire access roads, fire lanes and all public & private hydrants.
		b.	Code compliance plan: Occupancy/area separations, ratings, occupancy classes, exit loads, etc.
		c.	Locations, and classification(s), of the portable fire extinguishers.
		d.	Roof support column locations for each high piled storage area and give details if protected.
		e.	Ceiling slopes for each high piled storage area [i.e., not exceeding two in 12 (16.7 percent)].
		f.	Qualified analysis of Commodity Classifications-include %'s of limited Group A plastics.
		g.	Identify all contiguous areas occupied by a limited higher-hazard commodity.
		h.	Plan/Elevation Views of each high-piled storage area, aisle, commodity and arrangement type.
		i.	Usable storage height for each storage arrangement/area.
		j.	Clearance between top of storage and the roof/ceiling height for each storage arrangement.
		k.	Number of tiers within each rack, if applicable.
		l.	Commodity clearance between top of storage and the sprinkler deflector for each arrangement.
		m.	Maximum pile, shelf and palletized storage dimensions, volume & height for each storage array.
		n.	Location of commodities, which are banded or encapsulated.
		o.	Sprinkler system design approach with determining code sections, tables, figures and curves.
		p.	Identify how the sprinkler design density extends 15-feet beyond the high-piled storage areas.
		q.	If applicable, provide complete details on the location of all fire alarm devices.
		r.	Location of valves controlling the water supply of ceiling and in-rack sprinklers.
		s.	Type, location and specifications of smoke-removal and curtain board systems.
		t.	Dimension and location of transverse and longitudinal flue spaces.
		u.	Type of pallets, including materials of construction.
		v.	Type of shelves, including materials of construction.
		w.	Location(s) and a detail of the 1-1/2" hose valve stations.
		x.	Details on any specialty storage arrangement systems (i.e., automated, carousel, freezer, etc.).
		<b><i>Fire Sprinkler Permit</i></b>	
		a.	Everything under the "Miscellaneous/High-Piled Storage Permit" heading mentioned above.
		b.	Water flow test data in close proximity to the site (that was performed within last 5 years).
		c.	Sprinkler system design approach with determining code sections, tables, figures and curves.
		d.	Hydraulic calculations for roof/ceiling and storage/rack sprinklers.
		e.	Make, type, model, nominal K-factor, temperature rating & spec for each sprinkler type.
		f.	Type of sprinkler system used for each rack/storage and roof/ceiling system (i.e., wet, dry, etc.)
		g.	Locations and a detail of the 1-1/2" hose valve stations.
		h.	Type of horizontal barriers used in conjunction with in-rack sprinklers.
		i.	Minimum vertical clear space between the top of storage and in-rack sprinkler deflectors.
		j.	Plan/Elevation Views of the in-rack sprinkler locations in relationship to flues and storage.
		k.	Location of face sprinklers <u>from the aisle face of storage (not columns)</u> .
		l.	Location of all listed hangers and flex couplings, including a detail of each type of vertical drop.
		m.	Locations of all sway bracing.